Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 17-21, and 22-35 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. .

As per claims 17-21, "a propagating wave" is not directed to subject matter that meets a statutory category of invention.

As per claim 22-35, "a transcaling system" fails to recite hardware structure that meets a statutory category of invention in the body of the claims. One of ordinary skill in the art interprets "input module", "decoder", and an "encoder" as software, per se.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 9-24, 29-30, and 32-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Wu et al. – hereinafter Wu (US 6,700,933).

As per claim 1, Wu discloses a network node comprising:

an input module operable to receive an original scalable bit stream having an original bandwidth range; (Col 19 line 61 – Col 20 line 7)

a transcaling module operable to generate a new scalable bit stream having a new bandwidth range, wherein the new bandwidth range corresponds to a range of bandwidth that is different from that of the original bandwidth range at least in that it has a new minimum bit rate that is different from an original minimum bit rate of the original bandwidth range; and (Col 1 lines 39-67)

an output module operable to transmit said new scalable bit stream downstream. (Col 21 line 22 – Col 22 line 9)

As per claim 2, Wu discloses the network node of claim 1, wherein said transcaling module comprises a decoder operable to decode at least a portion of the original scalable bit stream. (Col 15 lines 6-16)

As per claim 3, Wu discloses the network node of claim 2, wherein the original scalable bit stream has an original base layer and an original enhancement layer, and said decoder is operable to generate a first new enhancement layer and a second new enhancement layer by decoding a portion of the original enhancement layer, said

transcaling module comprising a motion vector extraction module operable to extract motion vectors from the original base layer and operable to predict a next portion of said first new enhancement layer using the extracted original motion vectors. (Col 7 lines 17-35, Col 13 lines 33-46)

As per claim 4, Wu discloses the network node of claim 2, wherein the original scalable bit stream has an original base layer and an original enhancement layer, and said decoder is operable to generate a first new enhancement layer and a second new enhancement layer by decoding a portion of the original enhancement layer, said transcaling module comprising a motion vector generation module operable to predict a next portion of said first new enhancement layer by generating motion vectors for the first new enhancement layer. (Col 7 lines 17-35; Col 13 lines 33-46)

As per claim 5, Wu discloses the network node of claim 2, wherein the original scalable bit stream has a base layer and an enhancement layer, and said decoder is operable to reconstruct original media by decoding the base layer and the enhancement layer, the network node comprising an encoder operable to produce the new scalable bit stream by encoding the reconstructed media. (Col 9 lines 39-48)

As per claim 9, Wu discloses the network node of claim 1 comprising a link evaluation module operable to evaluate bandwidth of links to downstream devices. (Col 1 lines 50-67, Col 8 lines 15-26)

As per claim 10, Wu discloses the network node of claim 1, wherein said transcaling module is operable to generate said new scalable bit stream having said new bandwidth range based on bandwidth of links to downstream devices. (Col 8 lines 15-26)

As per claim 11, Wu discloses the network node of claim 1, wherein said new bandwidth range is a reduced bandwidth range compared to the original bandwidth range. (Col 8 lines 15-26)

As per claims 12, Wu discloses the network node of claim 1, wherein said new minimum bit rate of said new bandwidth range is higher than said original minimum bit rate of said original bandwidth range. (Col 8 lines 15-26, Col 9 lines 27-38)

As per claim 13, Wu discloses the network node of claim 1, wherein said new minimum bit rate of said new bandwidth range is lower than said original minimum bit rate of said original bandwidth range. (Col 8 lines 15-26, Col 9 lines 27-38)

As per claim 14, Wu discloses the network node of claim 1, wherein a new maximum bit rate of said original scalable bit stream is lower than an original maximum bit rate of said original scalable bit stream. (Col 8 lines 15-26, Col 9 lines 27-38)

As per claim 15, Wu discloses t he network node of claim 1, wherein said original scalable bit stream has an original base layer and an original enhancement layer, and said transcaling module is operable to generate a new base layer and a new enhancement layer based on said original base layer and said original enhancement layer. (Col 12 lines 27-38)

As per claim 16, Wu discloses the network node of claim 1, wherein said original scalable bit stream has an original enhancement layer, and said transcaling module is operable to decode a portion of said original enhancement layer for one picture and predict a next picture based on said decoded portion. (Col 6 line 55 – Col 7 line 8)

As per claim 17, Wu discloses a propagating wave for transmission of a new scalable bit stream comprising:

a base layer; and (Col 7 lines 17-35, Col 13 lines 33-46)

a plurality of new enhancement layers covering a new bandwidth range, wherein said new bandwidth range has a new minimum bit rate compared to an original minimum bit rate of an original bandwidth range of a plurality of original enhancement layers of an original scalable bit stream upon which said new bit stream is based. (Col 1 lines 39-67)

As per claim 18, Wu discloses the propagating wave of claim 15, wherein said new bandwidth range is further defined as a reduced bandwidth range. (Col 8 lines 15-26)

As per claim 19, Wu discloses the propagating wave of claim 15, wherein said new minimum bit rate is further defined as a higher bit rate than said original minimum bit rate. (Col 8 lines 15-26, Col 9 lines 27-38)

As per claim 20, Wu discloses the propagating wave of claim 15, wherein said base layer is further defined as a new base layer constructed from said original base layer and said plurality of original enhancement layers. (Col 2 lines 27-38, Col 12 lines 27-38)

As per claim 21, Wu discloses the propagating wave of claim 15, wherein said base layer is further defined as the original base layer, and wherein said new enhancement layers comprise a partially decoded portion of said plurality of original enhancement layers for a picture and a predicted next picture based on said decoded portion. (Col 6 line 55 - Col 7 line 8)

As per claim 22, Wu discloses a transcaling system, comprising:

an input module operable to receive an original scalable bit stream having an original bandwidth range; (Col 19 line 61 – Col 20 line 7)

a decoder operable to decode at least a portion of the original bit stream; and an encoder operable generate a new scalable bit stream by encoding a decoded portion of the original scalable bit stream. (Col 21 line 22 – Col 22 line 9)

As per claim 23, Wu discloses the system of claim 20, comprising an output module operable to communicate the new scalable bit stream to a device. (Col 21 lines 22-30)

As per claim 24, Wu discloses the system of claim 21, wherein said output module is operable to communicate a base layer of the original scalable bit stream to the device if a bandwidth of a link to the device is low. (Col 1 line 50-67, Col 8 lines 15-26)

As per claim 29, Wu discloses the system of claim 20, wherein said new bandwidth range is further defined as a reduced bandwidth range. (Col 8 lines 15-26)

As per claim 30, Wu discloses the system of claim 20, wherein said new bandwidth range is based on analysis of a communications link with said device. (Col 1 lines 50-67)

As per claim 32, Wu discloses the system of claim 20, wherein a new minimum bit rate of said new bandwidth range is higher than an original minimum bit rate of said original scalable bit stream. (Col 8 lines 15-26, Col 9 lines 27-38)

As per claim 33, Wu discloses the system of claim 20, wherein said original scalable bit stream has an original base layer and an original enhancement layer, said decoder is operable to reconstruct original media from said original base layer and original enhancement layer, and said encoder is operable to generate a new base layer and a new enhancement layer based on said reconstructed media. (Col 21 line 22-Col 22 line 9)

As per claim 34, Wu discloses the system of claim 20, wherein said original scalable bit stream has an original enhancement layer, said decoder is operable to decode a portion of said original enhancement layer, and said encoder is operable to predict a next portion based on said decoded portion. (Col 21 line 22-Col 22 line 9)

As per claim 35, Wu disclsoes the system of claim 32, wherein the original scalable bit stream has a base layer, and wherein said encoder is operable to use motion vectors of said original base layer to predict the next portion. (Col 21 line 22-Col 22 line 9)

As per claim 36, Wu discloses a transcaling method comprising: receiving an original scalable bit stream having an original minimum bit rate over a communications network; determining a new minimum bit rate; and generating a new scalable bit stream based on the original scalable bit stream and the determined new minimum bit rate. (Col 21 line 22-Col 22 line 9)

As per claim 37, Wu discloses the method of claim 34, wherein said receiving an original scalable bit stream comprises receiving an original scalable bit stream having an original base layer and an original enhancement layer. (Col 21 line 22-Col 22 line 9)

As per claim 38, Wu discloses the method of claim 35, wherein said generating a new scalable bit stream comprises generating a new base layer and a new enhancement layer based on said original base layer and said original enhancement layer. (Col 21 line 22-Col 22 line 9)

As per claim 39, Wu discloses the method of claim 35, wherein said generating a new scalable bit stream comprises: decoding a portion of said original enhancement layer for one picture; and predicting a next picture based on said decoded portion. (Col 21 line 22-Col 22 line 9)

As per claim 40, Wu discloses the method of claim 34 further comprising analyzing links of devices connected to said communications network, wherein said

determining a new minimum bit rate is further based on said analyzed links. (Col 21 line 22-Col 22 line 9)

As per claim 41, Wu discloses the method of claim 34, wherein said determining a new minimum bit rate comprises determining a new minimum bit rate that is higher than said original minimum bit rate, and wherein said generating a new scalable bit stream comprises generating a new scalable bit stream having the new minimum bit rate. (Col 21 line 22-Col 22 line 9)

As per claim 42, Wu discloses the method of claim 34, wherein said determining a new minimum bit rate comprises determining a new minimum bit rate that is lower than said original minimum bit rate, and wherein said generating a new scalable bit stream comprises generating a new scalable bit stream having the new minimum bit rate. (Col 21 line 22-Col 22 line 9)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6-8, 25-28, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (US 6,700,933) in view of Flinn / Satyanarayanan – hereinafter

Flinn (Energy-aware adaptation for mobile applications, Operating Systems Review, 34(5):48-63, Dec 1999)

As per claim 6, Wu discloses the network node of claim 1. Wu fails to disclose a processing power evaluation module operable to evaluate an amount of processing power available to said transcaling module. Flinn discloses processing power evaluation module operable to evaluate an amount of processing power available to said transcaling module. (5.11, 5.12, 5.13, 5.14) The step of processing power evaluation operable to evaluate an amount of processing power available to the transcaling module is is combinable and obvious with the disclosure of Wu for the motivation for selecting a correct tradeoff between energy conservation and application quality. (abstract)

As per claim 7, Wu / Flinn discloses the network node of claim 6 Wu fails to disclose wherein said transcaling module is operable to generate the new scalable bit stream having the new bandwidth range based on the amount of available processing power. Flinn discloses disclose wherein said transcaling module is operable to generate the new scalable bit stream having the new bandwidth range based on the amount of available processing power. (3.2.2) The step of wherein said transcaling module is operable to generate the new scalable bit stream having the new bandwidth range based on the amount of available processing power is obvious and combinable with the disclosure of Wu for the motivation for selecting a correct tradeoff between

energy conservation and application quality. (abstract)

As per claim 8, Wu / Flinn discloses the network node of claim 6. Wu fails to disclose wherein said output module is operable to transmit the original scalable bit stream downstream if the amount available processing power is low. Flinn discloses wherein said output module is operable to transmit the original scalable bit stream downstream if the amount available processing power is low. (3.2.2) The step of wherein said output module is operable to transmit the original scalable bit stream downstream if the amount available processing power is low is obvious and combinable with the disclosure of Wu for the motivation for selecting a correct tradeoff between energy conservation and application quality. (abstract)

As per claims 25-28, and 31, please see the discussion under claims 6-8 as similar logic applies.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag R Patel whose telephone number is (571)272-7966. The examiner can normally be reached on Monday to Friday from 7:30AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia, can be reached on (571) 272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pairdirect.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/C. R. P./
Examiner, Art Unit 2141

/Jason D Cardone/
Supervisory Patent Examiner, Art Unit 2145